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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/809,807 | 03/26/2004 | Hidenori Kin | Q80711 | 7949 |
| 23373 | 7590 | 08/22/2005 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | LEE, PETER | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2852 | |

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,807

Applicant(s)

KIN, HIDENORI

Examiner

Peter Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-21 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 17 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 24-25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al. (US 2002/0025173) in view of Luxem (US 2002/0044785).

Isobe teaches an image forming apparatus and method capable of precisely detecting the remaining amount of developer in a developer replenishing container (p. 1 paragraph [0020]) (ie. a device for calculating a total amount of toner consumed from a toner cartridge), comprising: a driving amount detection part for a toner replenishing means (fig. 1 part 431; p. 12 paragraph [0230]) (ie. a counter which obtains a first amount of the toner, which is consumed in a first region of a recording medium at which a toner image is formed); the driving amount detection part is in communication with a CPU (fig. 1 part 421; p. 15 paragraph [0332]) that is used to detect the amount of toner remaining after an image formation by measuring the rotating time (p. 12 paragraphs [0230]-[0236]) (ie. a timer, which clocks a time period of which the toner cartridge is in operation); and the CPU is also taught to be used in the calculation of a total amount of toner consumed which takes a total amount of toner consumed and then adds a correction count to find the final toner amount consumed, $X=X+\Delta X$ (p. 16 paragraph [0357]-[0359]) (ie. a calculator, which adds the second amount to the first amount in order to obtain the total amount).

Isobe also teaches having RAM rewritable memory (fig. 1 part 403) consisting of two separate storage parts, a first storage area (fig. 1 part 403a) (ie. a first storage) and a second storage area (fig. 1 part 403b) (ie. second storage). The first storage area is taught to contain important data and identification information pertaining to the image forming apparatus (p. 11 paragraph [0214]), while the second storage area is taught to include dynamic information pertaining to the operation of the image forming apparatus (p. 11 paragraph [0221]). Both storage areas contain information that will later be used to calculate a total toner consumption amount (ie. calculator which adds the second amount and the third amount to the first amount, in order to obtain the total amount).

Isobe does not teach storing an offset value indicating a consumption rate of toner in a second region which a toner image is not formed.

Hisano (US 6393228) teaches a toner amount measuring apparatus (fig. 14 part 120a) that is used to measure both an amount of toner being consumed for a toner image (part 161) and the toner amount for a fogging effect (col. 11 lines 25-37) (ie. Offset value in a second region which the toner image is not formed).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Isobe to take into account the toner amount being consumed due to a fogging effect as is taught by Hisano. One of ordinary skill in the art would have been motivated to do so in order to precisely measure an amount of consumed toner that will ensure a the formation of a high quality image (col. 11 lines 30-37).

3. Claims 2, 3, 6-13, 16, 18-21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al. (US 2002/0025173) in view of Luxem (US 2002/0044785).

Isobe teaches an image forming apparatus and method capable of precisely detecting the remaining amount of developer in a developer replenishing container (p. 1 paragraph [0020]) (ie. a device for calculating a total amount of toner consumed from a toner cartridge), comprising: a driving amount detection part for a toner replenishing means (fig. 1 part 431; p. 12 paragraph [0230]) (ie. a counter which obtains a first amount of the toner, which is consumed in a first region of a recording medium at which a toner image is formed); the driving amount detection part is in communication with a CPU (fig. 1 part 421; p. 15 paragraph [0332]) that is used to detect the amount of toner remaining after an image formation by measuring the rotating time (p. 12 paragraphs [0230]-[0236]) (ie. a timer); and the CPU is also taught to be used in the calculation of a total amount of toner consumed which takes a total amount of toner consumed and then adds a correction count to find the final toner amount consumed, $X=X+\Delta X$ (p. 16 paragraph [0357]-[0359]) (ie. a calculator, which adds the second amount to the first amount in order to obtain the total amount).

Isobe also teaches having RAM rewritable memory (fig. 1 part 403) consisting of two separate storage parts, a first storage area (fig. 1 part 403a) (ie. a first storage) and a second storage area (fig. 1 part 403b) (ie. second storage). The first storage area is taught to contain important data and identification information pertaining to the image forming apparatus (p. 11 paragraph [0214]), while the second storage area is taught to include dynamic information pertaining to the operation of the image forming apparatus (p. 11 paragraph [0221]). Both storage areas contain information that will later be used to calculate a total toner consumption amount (ie. calculator which adds the second amount and the third amount to the first amount, in order to obtain the total amount).

Isobe also teaches the image forming apparatus to be capable of color image formation from toner colors 120Y-120K (fig. 14) (ie. a plurality of colors of toner are used to form the toner image).

Isobe also teaches a step in where the detected amount of toner found in the toner replenishing containers are compared to a set of toner amount life threshold data (p. 13 paragraph [0268]) (ie. a judge, which judges a time at which the toner cartridge is replaced, in a case where the remaining amount becomes a predetermined value or less). The life threshold data set is applied to each of the toner replenishing containers and will correspond depending on the toner amount left of each individual container (p. 13 paragraph [0266]) (ie. the predetermined value is individually determined for each of a plurality of toner cartridges having different volumes). The life threshold data set contains a plurality of values to choose from, including one which indicates a toner replenishing container is at the end of its life (p. 13 paragraph [0273]) (ie. substantially zero)

Isobe does not teach the second or third amounts of toner being test images.

Luxem teaches a method and apparatus for determining the amount of toner consumption measurements of all print operation done in a printer being done before an actual print job (ie. stores in advance; p. 1 paragraph [0007]). Luxem teaches to print test images onto a transfer belt (ie. a test image in a second region) before processing an actual print job and using this test image to determine with accuracy the amount of toner being applied to a printable surface during a print operation (p. 2-3 paragraph [0023]). Luxem also teaches that the printer is a color printer with colors black, yellow, magenta, and cyan (p. 3 paragraph [0027]) and that each of the four colors will print three test images (p. 3 paragraph [0027]) (ie. second and third amounts for

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forming a first and second test image; second and third amounts are individually determined for each of the colors).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to take the toner consumption detecting invention taught by Isobe and modify it by including the initial test image printing on a transfer belt in order to be able to accurately store in advance an amount of toner that would be used up in subsequent print operation, including that of future test images. The driving amount detection part taught in Isobe would then be able to aid in determining a toner amount to print a test image taught by Luxem (ie. second amount being associated with the time period), and then to store the test image toner amount in one of the memory storage areas taught by Isobe (ie. storage which stores in advance a second/third amount). One of ordinary skill in the art would have been motivated to modify the invention taught by Isobe to include the toner amount detection system as taught by Luxem by using test images printed onto a transfer surface because the direct measurement of the amount of toner transferred to a printable surface permits very precise control of the printing process (p. 1 bottom half of paragraph [0005]).

4. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe et al. (US 2002/0025173) in view of Luxem (US 2002/0044785) as applied to claims 1-3, 6, 7, 9-13, 16, 18-21, 23 above, and further in view of Izumizaki.

Isobe and Luxem teach all of the limitations as laid out above. The invention of Isobe and Luxem does not teach the test images (ie. second amount of toner) being used as a registration mark for placing the recording medium at a predetermined position.

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Izumizaki teaches a color image forming apparatus which prints out test patches (ie. second amount of toner) onto a transfer belt (ie. not in a region of image formation on a recording medium) which serve to detect a toner density (col. 7 lines 5-21). This part of the invention taught by Izumizaki is nearly identical to that taught by Luxem. Izumizaki further teaches that these same test patches can be used as registration sensors (col. 7 lines 26-50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention taught by Isobe in view of Luxem by giving the test images the dual capability of detecting a toner density and registration detection as taught by the test patches in Izumizaki. One of ordinary skill in the art would have been motivated to modify because the added registration monitoring ability aids in detecting any discrepancies in a transferring position in both widthwise directions which will help create properly aligned print images (col. 7 lines 30-33).

5. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isobe in view of Luxem as applied to claims 1-3, 6, 7, 9-13, 16, 18-21, 23 above, and further in view of Shimura et al. (JP 2001042729).

Isobe in view of Luxem teach all of the limitations as laid out above, but do not teach the limitation of the second amount of toner being used for stabilizing vibrations of a cleaning blade abutted against a toner carrier.

Shimura teaches an image forming device having a blade (fig. 2 part 21) positioned to scrape off toner remaining on an image carrier (fig. 2 part 10). The toner in Shimura is taught to also operate as a lubricant between the image carrier and the scraping blade (paragraph [0008]).

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This functionality is also taught to reduce vibrations that may occur during rotation of the image carrier as the blade scrapes it (paragraph [0009]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention taught by Isobe in view of Luxem by allowing the toner from the test image (ie. second amount of toner) be used as a lubricant on an image carrier as taught by Shimura. One of ordinary skill in the art would have been motivated to make the modification in order to reduce vibrations on the image carrier that would increase the performance of the image forming device (paragraph [0027]).

6. Claims 17 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues on p. 13 pertaining to claim 1 rejection, that the prior art of reference does not teach a second toner amount from a non image region. The teachings of Hisano (US 6393228) is relied upon in the current office action for teaching a toner amount measuring apparatus that specifically takes into account an amount of toner used due to the phenomenon of fogging (ie. Second toner amount in a non image region).

Applicant also argues on p. 13 that Luxem does not teach an apparatus that measures a toner amount consumed when forming a test image. However, examiner has clearly stated that the reference of Luxem teaches the measurement of a test patch image as is written in the previous and current office action.

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the teachings of Luxem is related to the teachings of Isobe because both inventions

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pertain to a toner amount consumed measuring device that is part of an image forming apparatus. Luxem is specifically being used to modify the invention of Isobe to take into account the toner that would be used when forming test patches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Lee whose telephone number is 571-272-2846. The examiner can normally be reached on mon-fri 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL 8/17/2005



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